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ABSTRACT

This study discusses the contention that since vocational education costs more per pupil on the average than academic or general education, it should yield greater benefits to its students. Focus is on examining pitfalls inherent in this approach/contention and synthesizing recent research materials which reflect the benefits of vocational education. After briefly describing the methodology (which included examining relevant materials ranging from the 1970s to the present, reviewing planning staff evaluation files at the Bureau of Occupational and Adult Education (DHEW), and gathering information through contacting persons in organizations familiar with vocational research), major content focuses on research reports in the following areas: the problem of conflicting objectives and expectancies for vocational education, overlooked miscellaneous benefits of vocational education, national studies focusing on vocational followup, postschooling status of vocational graduates, economic value of vocational education, and satisfaction values. Some of the conclusions noted as a result of the study follow: (1) Vocational graduates are doing as well as, and often better than, graduates of other curriculums, (2) perhaps the most overlooked accomplishment of vocational education stems from its assistance to important segments of society that might not be adequately served by academic or general education, and (3) vocational education is held to higher effectiveness standards than academic and general education. (SH)

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A SYNTHESIS OF RESEARCH FINDINGS WHICH
DESCRIBE SELECTED BENEFITS AND OUTCOMES
FOR PARTICIPANTS IN VOCATIONAL EDUCATION

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INTRODUCTION

The purpose of this study is to identify and explore selected benefits of vocational education. The need for such a study arises from confusion and disagreement regarding the role of vocational education in our Nation's education systems. By examining the experiences of vocational graduates, this study attempts to clarify how vocational training serves its participants.

In the past several years, vocational education has increasingly come under pressure to justify the Federal funds expended on it. Criticism has often been generated by advocates of other curricula in a continuing battle over available funds. Their primary argument, on the surface, seems logical: Since vocational education costs more per pupil on the average, than academic or general education, it should yield greater benefits to its students. This report discusses that essential contention, examines pitfalls inherent in such a simplistic approach, and synthesizes recent research materials which reflect the benefits of a vocational education.

METHODOLOGY

This study relies upon a wide array of resources ranging from interviews with program specialists to privately, as well as publicly commissioned research reports and scholarly articles. A brief methodological sketch follows, describing the time span studied, the resources consulted, and finally, the format utilized in this report.

Research examined for this study is from the period 1970 through mid-1977. Data from before 1970 are not likely to reflect any impact of the Vocational Education Amendments of 1968.¹ For that reason, even 1970 reports which follow up graduates of the late 1960's are generally disregarded.

Resources primarily were obtained by three methods. First, the ERIC system was searched for relevant materials. This was done by examining individual ERIC indices dating back to 1970, utilizing the following descriptors: Vocational Followup, Longitudinal Studies, Job Placement, Educational Benefits, and Vocational Education. At times, additional descriptors were scanned, usually when interesting entries cross-referenced to them. Some of these descriptors were Program Evaluation, Occupational Aspiration, and Followup Studies. This same process was repeated for both ERIC documents and journals. Abstracts were read and pertinent studies noted. At this point, entire documents were viewed on microfiche. Educational journals, located at the National Institute of Education, were also studied.

The second method of acquiring resources consisted of reviewing Planning Staff evaluation files in the Office of the Deputy Commissioner, Bureau of Occupational and Adult Education (BOAE). Contained therein are numerous evaluation reports addressing diverse aspects of vocational education. Several major national reports were useful. Reports confined to particular program areas (e.g., work study, disadvantaged) were disregarded.

The third method of gathering information was chiefly through contacting persons in organizations familiar with vocational research and examining the resources suggested by them. Organizations contacted include, but are not limited to: The Ohio State University Center for Vocational Education; the Research Branch of the Division of Research and Demonstration, BOAE; the Office of Planning, Budgeting and Evaluation, OE; and the Planning Staff of the Office of the Deputy Commissioner, BOAE.

The enormous volume of resource materials, as well as time constraints, limited the amount of information which could be incorporated into this study. Therefore, criteria for inclusion depend upon the source from which the material is obtained. ERIC documents, for instance, are generally selected for their breadth of scope. The narrower the cohort studied, the less likely that it will be referred to herein. ERIC journals are less scientific than ERIC documents; hence, they are utilized

more for the issues discussed than for the size and scope of the group studied.

Reports from Planning Staff evaluation files were selected or rejected primarily on the basis of their relation to variables chosen for examination in this study. For example, if a study reports on earnings and job acquisition, particularly if it further compares differences by curriculum, then it is likely to be utilized in this study.

Similar criteria were used to choose pertinent materials suggested by the various individuals consulted. This largely completed the information gathering stage.

The single, most difficult task in compiling this report was developing a systematic technique to synthesize an amorphous mass of research. The data defy such a process. In fact, the 1974 GAO report states that "formal systematic followup of students generally was not performed."² Statistics widely vary in terms of years they represent. Graduates are followed up at arbitrary intervals (e.g., some 18 months after graduation, some 5 years, etc.). Reporting categories vary from State to State (e.g., some States include students below seventh grade in secondary education, others count only those above ninth grade). Definitions are not uniform (e.g., jobs are defined as training-related by students, teachers, or administrators, depending on the study). Methodologies seldom are alike (e.g., sampling techniques range from random samples

to arbitrarily chosen participants). Non-response bias plagues many studies (e.g., response rates vary from 30 percent to 95 percent, but nonrespondents may not be accounted for). And finally, reports focus on different groups (e.g., some reports study graduates by State, some by institution, and some nationally).

These variations led to the development of the format utilized in this study. First, the reports are placed into a dichotomy by National Studies or State and Institutional Studies. Next, each variable selected as indicative of success is listed, briefly introduced, and followed first by information extracted from National Studies and then by information from State and Institutional Studies. A section relating methodological differences in National Studies precedes the information reported from them. State and Institutional Studies are considered less important and therefore are only explained briefly within each category. Conclusions, as well as recommendations, are general and cautious.

VOCATIONAL OBJECTIVES AND EXPECTANCIES ARE UNCLEAR

A major obstacle to identifying benefits stems from a lack of concrete objectives for vocational education. Researchers repeatedly criticize articulated objectives as rhetorical and indefinite. For example, Max Eninger argues in the Project Metro Study that "statements never undergo translation to a set of measurable objectives..."³ If we accept the notion that benefits should directly result from planned objectives, the difficulty becomes apparent: how can one gauge vocational success, in terms of benefits produced, when the objectives designed to produce those benefits are often not measurable? One irritating outcome of this situation is a lack of consistency and precision among researchers and their products. The absence of consistency, in turn, creates difficulties for assessing whether vocational education is successful. A case in point: if 80 percent of vocational graduates acquire employment, as opposed to 70 percent of academic graduates, is the vocational training successful? It is hard to get a uniform answer. Therefore, conclusions derived from analysis of typical vocational research are necessarily tenuous and should be read in that light.

The problem of conflicting objectives parallels the problem of indefinite objectives. Vocational educators who are philosophically compatible with broad objectives can seldom translate their ideas into harmonious categories of benefits

and detriments; one educator may expect and encourage a specific outcome from vocational training while another educator views that same outcome as a detriment.

Examples of such incongruent expectancies abound. A 1976 study by the National Academy of Sciences found that researchers often expect secondary vocational training to lead directly to employment upon graduation; desire for further schooling suggests failure of the vocational program.⁴ In contrast, some look upon subsequent enrollment in postsecondary education as proof that secondary vocational training delivers alternatives rather than saddles able students with possibly undesirable, low-paying jobs.⁵ Still others view secondary vocational training as effective when the chosen postsecondary field of study parallels that pursued at the secondary level.⁶ These same educators consequently administer programs in a manner calculated to produce what they personally believe are beneficial outcomes.

Predictably, such divergent perceptions regarding the purposes of vocational education result in an array of problems for the researcher. The most troublesome, again, centers on the lack of uniformly focused research that has been done. Even when one attempts to reconcile the available research, there remains a rather confusing body of benefits variously referred to as indirect or miscellaneous benefits. The following section deals with that area.

MISCELLANEOUS BENEFITS OF VOCATIONAL EDUCATION

It is impossible to convey a true perspective on the scope of this study without identifying and briefly investigating some relevant items which are omitted. For lack of a better title, they are collectively referred to as miscellaneous benefits.

These benefits, although not unimportant, receive little attention for a variety of reasons: some benefits are difficult to identify; some benefits may not be causally related to vocational education; some cannot be quantified; others simply have not been researched to date.

Occasionally, researchers identify and focus on these benefits, but normally in a sketchy fashion. In a cost effectiveness study, Dr. I. A. Ghazalah lists several benefits often ignored because they are non economic. He includes "the greater satisfaction and higher sense of personal worth vocational graduates derive from working in an occupation of their choosing and their increased participation in society brought about by greater self-confidence..."⁷ Dr. Ghazalah adds that there are other indirect benefits to society at large. Child care training, for one, generally has practical usage in the home.⁸

Additionally, some find that vocational education improves communication skills, self-confidence, work attitudes, and interpersonal relationships.⁹ Others suggest that social good may be fostered by vocational education, since vocational students more frequently endorse the goal "of having a good

marriage and a happy family life..."¹⁰

A significant achievement of vocational training that is widely overlooked when comparisons are made among vocational, academic, and general graduates stems from the socio-economic status of students in the different curricula. Often, inadequate allowance is made for the relatively poor socio-economic backgrounds of vocational graduates. A study by the National Planning Association found that "most students in vocational education come from families with a lower socio-economic status than the population at large"¹¹ Consequently, comparing vocational graduate achievement with academic and general graduate achievement is unfair unless suitable adjustments are made. Students with diverse backgrounds usually don't start school on an equal footing; therefore, across-the-board comparisons often create distorted pictures. Awareness of this disparity is critical for sound evaluation of education.

The miscellaneous benefits listed above are open to speculation and criticism. They are, however, areas which have been identified by scholars in the field, and therefore, areas which the reader should be mindful of. Ultimately, many of them should attract research.

MAJOR NATIONAL STUDIES

This section contains a list of major national studies utilized by this report. A brief synopsis follows each title and identifies variances in project scope and methodology.

- (1) Project Metro - This report studies and compares experiences of vocational, academic, and general graduates of secondary schools. The samples were drawn from major cities with populations of at least 250,000, the vocational graduate sample totalling 34,710. The class of 1970 was followed up by mailed questionnaires in the fall after graduation. There was a usable response rate of approximately 48 percent. Documents analyzing the data were submitted in 1972¹² and 1974.

- (2) National Longitudinal Study of the High School Class of 1972 - This project is perhaps the most comprehensive longitudinal study currently in progress. The sample consists of about 18,000 randomly selected 1972 high school seniors, to which about 4,000 more were added the following year. The cohort was followed up 18 months after graduation with a resultant response rate of close to 90 percent. A document analyzing results of the followup was released in 1977. Plans exist for additional followups over a period of years.¹³

(3) Policy Issues and Analytical Problems In Evaluating Vocational Education - This report, developed by the National Planning Association consists primarily of research and analyses of available information regarding vocational education evaluation. Numerous followup studies are examined; however, the majority of data relied upon is pre-1970. Therefore, much potentially useful information is not repeated herein; instead, some generalizations are reported. The final report was published in 1972.¹⁴

(4) Project Baseline - This recently terminated project was inaugurated in 1971. It combines several bulky sets of data in an attempt to sketch a more comprehensive picture of vocational education.¹⁵ The authors, however, concede that many of their cumulative figures are unreliable because the original sources calculated their respective statistics utilizing varied methodologies. They also admit that their sources (e.g., vocational teachers and administrators) are often biased and occasionally unreliable.¹⁶ After noting these major drawbacks, the researchers proceed "on the assumption that it is better to collect and tabulate imperfect data and gain some knowledge, however imperfect, than to have no knowledge at all."¹⁷ There must be a more optimistic note on which to introduce a study, but this one typifies the frustration of many vocational researchers. Response rates are not reported because, considering the multiple data sources, they

serve little purpose. Annual and supplementary reports have been published since 1971; the last, submitted in 1976, primarily reflects 1975 statistics, but accumulates those since 1971 as well.

(5) Assessing Vocational Education Research and Development

This study, prepared by the Committee on Vocational Education Research and Development, evaluates research initiated by the U.S. Office of Education. The committee immediately notes in its preface the lack of complete or uniform data generated by States.¹⁸ Unfortunately, the relevant reports noted in its study are predominantly pre-1970; moreover, the committee's report is a recent one, just published in 1976. Again, this illustrates a recurring dilemma: one cannot develop a well-grounded analysis while relying on out-of-date information.

Response rates are omitted for two reasons. First, the committee drew information from a variety of sources. Second, the committee did not perform its own follow-up studies as such; rather, they located and utilized those done by others.

(6) GAO Report: What is the Role of Federal Assistance for Vocational Education?

The General Accounting Office reviewed vocational education programs in seven States: California, Kentucky, Minnesota, Ohio, Pennsylvania, Texas, and

Washington. Interviews and site visits were the primary methods of obtaining information. The investigations explored areas of vocational education in which the Federal dollar plays a part. A final report was submitted on December 31, 1974.¹⁹

THE BENEFITS OF VOCATIONAL EDUCATION

A. THE POSTSCHOOLING STATUS OF VOCATIONAL GRADUATES

This section deals with the activities of students once they leave school. It includes factors such as employment status, enrollment in postsecondary education, and comparisons with other curricula. The importance of gathering such information is obvious; it is the first, most elementary framework for examining educational outcomes.

Postsecondary Educational Enrollment

National Studies - The reader should recall here the disagreement discussed in the section on objectives, as to whether postsecondary school enrollment reflects vocational success or failure. Any inferences drawn from the data should accordingly be qualified.

Project Metro reports that approximately 30 percent of the vocational graduates studied were subsequently enrolled as full- or part-time college students. An additional 7 percent were attending other schools.²⁰

Project Baseline gives total numbers of vocational students continuing their education each year from 1971 through 1975.²¹ Also listed are total numbers of completions each year. The percentage of graduates (completers) who continued their education in 1975 is approximately 25 percent.²²

The National Longitudinal Study states that fully 40 percent of vocational high school graduates were engaged in formal postsecondary education at the time of the follow-up.²³ Formal postsecondary education was defined as consisting of colleges, universities, business or trade schools, service academies, technical or vocational schools, junior or community colleges, etc.²⁴

State and Institutional Studies - State and institutional studies suggest that many students from all types of schools are continuing on to postsecondary institutions. An article from Manpower, entered in the Senate record of the 1975 hearings on vocational education programs, observes that there is little difference, by curriculum, in the ratios of graduates entering higher education.²⁵

One comparative study on students entering Lehigh County Community College in Pennsylvania comments that more vocational students would continue their education if postsecondary schools targeted their programs to improve upon students' occupational skills.²⁶ A notable assertion of the Lehigh study is that there is no proportional difference, relative to high school curriculum, as to subsequent graduation from college. This, combined with the finding that entering freshmen from the vocational curriculum were initially less academically capable, suggests that vocational enrollees may be relatively more persistent in their desire to complete school.²⁷

Several other reports indirectly attest to vocational students' pursuance of postsecondary education by tracking the students upon their completion of community colleges, etc. Those studies appear under various other headings and are not identified here.

Employment and National Studies - Most vocational graduates do not continue their education. Instead, they become available for employment in one form or another. Some immediately seek employment; some join the ranks of unemployed; some enlist in the armed forces or marry and start families. For those rearing children or serving in the military, it may be years before entry into the labor force and an opportunity to capitalize on skills formed during vocational training. Unfortunately, these delayed benefits customarily go unreported since most studies only examine students shortly after graduation -- one more limitation to be cognizant of when interpreting followup data.

Another recurrent problem, that of non-uniform definitions also hinders a sound assessment of data in this area. One such troublesome definition is "completers". Some researchers include early leavers with marketable skills under the heading of completers,²⁸ whereas others report only those students graduating from their respective programs as completers.²⁹ Inaccuracies occur when employment statistics then focus on "completers available for work." Those studies including early leavers within their definitions

of completers may consequently portray programs as unsuccessful in developing employable students, i.e., those students leaving programs prior to completion conceivably might find job-hunting less productive. Conversely, a more restrictive definition of completers may produce a higher employment rate for the same group of students.

Another instance of incongruous reporting categories relates to the manner in which people are identified as employed. The U.S. Department of Labor requires a minimal number of hours worked for inclusion in their statistics as employed. Some researchers, however, include only full-time workers under the heading of employed.³⁰ When the two types of statistics are subsequently compared, false and specious conclusions may occur.

Project Metro's report on vocational graduates asserts that "about 43 percent were employed full-time, 13 percent were employed part-time, 17 percent were unemployed and looking for work, and 20 percent were not employed and not looking, mainly because of enrollment in higher education."³¹

They then note, however, that only 54 percent were available for full-time employment, the remaining 46 percent being unavailable because of service in the armed forces, enrollment in postsecondary education, or due to personal reasons. Of those available for full-time work, Metro states that

71 percent were employed full-time, 7 percent were employed part-time, and 22 percent were unemployed and searching for full-time work.³²

The second Project Metro report, released in 1974, provides data for comparing academic and general graduate employment with that of vocational graduates. For all students, 35 percent of general graduates and 9.5 percent of academic graduates were employed full-time as contrasted with 43 percent of similarly situated vocational graduates (as cited above from the 1972 report). Unemployment figures, on the other hand, show that 22 percent of general graduates, and 23.1 percent of vocational graduates were unemployed.³³ Vocational education projects a comparatively high unemployment rate here because Metro calculated it in terms of those available for work; a greater number of academic and general graduates engage in postsecondary education and thus are not considered available for work. If more of these students were competing with each other in the labor force, vocational education's relative unemployment status would likely improve.

Project Baseline offers a more optimistic analysis of the employment picture. FY 1975 data indicate that about 50 percent of vocational program completers (includes early leavers with marketable skills) were employed full-time.

When the figures are adjusted to represent only those graduates available for work, the amount increases to 88 percent.³⁴ Baseline shows that these percentages have remained relatively stable since 1971. This is especially noteworthy in light of the recession economy and attendant tight job market which confronted recent graduates. As Baseline puts it: "consistently higher employment rates for Vocational Education students than for those without vocational training in a tight job market cannot be ignored."³⁵

Vocational completers also fared well in regard to unemployment rates, according to Baseline figures. They recently were unemployed at the rate of 11.5 percent, which was about 5.5 percent lower than the national average for comparable age groups (16-24 years old). Indeed, the gap was increasing; unemployment of vocational education graduates was up only 1.4 percent compared with a 2.4 percent national unemployment rate increase.³⁶

The National Longitudinal Study findings on employment parallel those given above. Their figures show that 77 percent of vocational graduates were employed. Comparatively, only 68 percent of general graduates and 56 percent of academic graduates were employed.³⁷ Narrower data focusing only on those available for work are not given.

In terms of unemployment, vocational graduates did not fare as well. They experienced a 20 percent unemployment rate, very close to the general graduate rate of 21 percent. Seemingly, academic graduates were most sought after, yielding a 14 percent unemployment rate. The study correctly points out, though, that these figures are really "a reflection that fewer academic graduates were in the labor market..."³⁸ Additionally, of those students aspiring to work full-time upon graduation, NLS states that those from the vocational curriculum most often realize their goal.³⁹

State and Institutional Studies - The consensus of most studies is articulated by Beatrice G. Reubens when she writes: "The most common finding (of vocational follow-up studies) has been that vocational graduates obtain their first jobs more quickly and, subsequently, experience fewer and briefer spells of unemployment than others with a high school education."⁴⁰ Not surprisingly, she qualifies that statement by warning that the results are not conclusive -- a necessary caveat considering the multiplicity of methods and aims of the researchers.

Typical of the limited, small-scale State and institutional reports is an Arkansas followup study of 1970 graduates from eight high schools.⁴¹ The response rate from mailed questionnaires was a mere 36 percent. Approximately 64 percent

of vocational graduates responded that they were working full-time compared with about 62 percent of non-vocational graduates. The report concludes that there are no significant differences in employment by curriculum relating to any of the occupational categories. For those kinds of sample groups, there are often many local economic factors which may account for apparent trends. Additionally, it is difficult to extract information from small-scale studies for inclusion here since much of their focus is on training-related employment and not employment generally. It is, therefore, explored in the section relating vocational training to subsequent employment.

B. THE ECONOMIC VALUE OF VOCATIONAL EDUCATION

Perhaps the most critical challenge for vocational education is to demonstrate the degree to which it benefits its graduates economically. After all, this is the area most often attacked by its critics. Employment rates alone, so the debate goes, do not adequately reflect success or failure. More important are factors such as earnings, whether jobs are related to prior vocational training, and length of time needed to find jobs. These factors are discussed here, hopefully without joining the debate regarding the relative importance of each in educational evaluation. Similar statistics, necessary for comparisons with other curricula, are scarce. Apparently, matching jobs with

educational interests is of far more concern to vocational educators (and their critics) than it is to general and academic scholars.

The latter part of this section relates how long it takes graduates to find jobs. Quick entry into an occupation could qualify as a benefit of vocational education -- assuming graduates want to be employed quickly. For example, one economic benefit of early employment is increased earnings in the first year after school.

The Relation of Vocational Training to Subsequent Employment

National Studies - This section focuses first on whether graduates get jobs related to their vocational training. Critics argue that vocational programs are unsuccessful if graduates obtain employment in fields other than those for which they are vocationally trained. Vocational advocates, on the other hand, allege that skills acquired during school are many times transferable; thus, vocational training is considerably more helpful in gaining employment than job-relatedness data suggest. Regardless of one's opinion, most agree that securing jobs which are directly related to vocational training is a desirable goal.

Project Metro reports that only 45 percent of vocational graduates employed full-time were working in fields for which they were trained. Moreover, when all vocational graduates are included, the figure drops to a dismal 16.3 percent.⁴² Graduates employed in training-related jobs usually remain longer

with their first jobs,⁴³ frequently securing these jobs before graduation.⁴⁴

Academic and general graduates required significantly more time to acquire initial full-time jobs than did vocational graduates, according to Project Metro's 1972 report.⁴⁵ The 1974 report, however, states only that "vocationals took a slightly shorter average time to find jobs..."⁴⁶

Statistics compiled by the Baseline staff portray the acquisition of training-related employment by program completers in a more favorable light. Most recently, they report that 774,000 of 1,208,000 vocational graduates available for work were employed full-time in fields related to their training.⁴⁷ This figure is close to 65 percent. When adjustments are made to include total graduates, the proportion drops to about 35 percent.

The National Longitudinal Study distinguishes graduates working in training-related fields in a slightly different manner: they first identify those graduates who received job-specific training in high school (vocational - 64 percent; academic - 12 percent; general - 25 percent).⁴⁸ They then question that group to ascertain what percentage further used their training on the job. The results were 64 percent, 59 percent, and 53 percent for vocational, academic, and general graduates, respectively.⁴⁹ Of this group, vocational graduates were "most likely to indicate they had been able to apply almost everything they had been taught."⁵⁰

Statistics reflecting the time required to secure initial jobs are not reported in the NLS, but the average number of weeks worked in the first year is discussed. Vocational graduates worked the most average weeks, followed in order by general and academic graduates.⁵¹ This may or may not reflect time required to find a first job.

The GAO Report analyzes U.S. Office of Education data on training-related employment. It cites FY 1972 figures which show that between one-third and three-fifths of vocational completers available for work were employed in training-related fields. The report, however, criticizes these statistics for lacking consistency with those reported by States.⁵² The Bureau of Occupational and Adult Education's reply accounts for any such discrepancy by noting the poor quality and small amount of placement data available from the States.⁵³

State and Institutional Studies - One of the most ambitious documents in this area is also one of the most sanguine for vocational educators. It is entitled "A Five-Year Follow-Up of Students Enrolled in Post-Secondary Vocational-Technical -Transfer Programs." A national sample of students was examined five years after enrollment in postsecondary institutions. A 60 percent response rate was achieved and a report presented in 1975.

The results are quite favorable. A very high proportion of program completers is reported to have found employment in

fields closely related to their training.⁵⁴ Interestingly, many noncompleters also found jobs related to their aborted training. Another finding is that even those students not initially obtaining jobs related to their training often depart their first jobs and secure others which are training-related. Various inferences may be drawn from such a finding. The conclusion offered by the authors portrays vocational training as a motivator which encourages persistence in job hunting.⁵⁵

A common finding, endorsed by the study at hand, is that postsecondary graduates fare better in obtaining employment than their secondary graduate counterparts. This is reflected by the finding that workers employed in training-related positions feel, by a ratio of about three and one-half to one, that they could not have gotten their jobs without postsecondary training.⁵⁶ This is not astounding; however, a more in-depth analysis would add the cost of postsecondary education to earnings and work experience lost by those students not starting work immediately after high school.

One study of male Massachusetts students does take such a tack.⁵⁷ The relevant conclusions will be discussed in the section on earnings. As far as employment goes, however, the study notes that only 31 percent of vocational graduates

ever found full-time employment in training-related fields. It justifies those statistics by declaring that many skills are transferable, and thus vocational training may be indirectly responsible for the success and employment of those entering other fields. Again, here is an example of the numerous ways in which success is measured.

There are other studies and articles which, although limited, speak favorably of vocational success in placing students. One typical article concerns an Ohio school district. It reports that of 256 graduates available for employment from the May 1970 graduating class, 249 were employed by January 1971.⁵⁸ It is difficult to draw conclusions from such a small study; however, it is mentioned here to illustrate the sort of locally focused material which is available.

The previously mentioned Arkansas study similarly concludes that proportionally more vocational graduates (52 percent) are in jobs related to their high school concentration than are graduates from other curricula (37 percent).

Earnings

National Studies - Earnings from employment is one of the more popular criteria by which graduate success is gaged. When interpreting the findings related to earnings, however, one should be aware of some factors other than graduation from a particular curriculum which influence data on income.

Students prioritize their desire for money in unequal ways, economic fluctuations affect certain occupations differently than others, and low-income workers may be hesitant to correctly report their salaries. Still, statistics on earnings are potentially useful for objectively assessing vocational success.

The National Planning Association draws on some comparatively old studies to generalize that vocational graduates earn more than other graduates.⁵⁹ Nevertheless, they caution that economic conditions are theoretically capable of neutralizing this income advantage.⁶⁰

Project Metro focuses on hourly earnings to compare students by curriculum. It states that vocational workers receive higher pay per hour, but regards the difference as insignificant.⁶¹ The 1974 report indicates that workers from general educational programs lag behind vocationals and academics in earnings.⁶² Those vocationals employed in appropriate fields reportedly were making five to fifteen cents more per hour than those working in fields unrelated to their schooling.⁶³

One of the few major studies that reveals significant income disparity based on high school curriculum is the National Longitudinal Study. It asserts that one product of vocational training is an increased annual salary; the advantage

is primarily confined, however, to incomes under \$6,500.⁶⁴

The National Academy of Sciences refers to a 1972 study on earnings and their relation to education. The major drawback to its use is the group of students studied -- those from the 1968 graduating class. The research discovered vocational graduates to be earning \$400 more annually than academic graduates and \$275 more than general graduates.⁶⁵

State and Institutional Studies - There is a large group of materials which scrutinizes earnings from a cost-effectiveness, cost-benefit angle. Those reports, for the most part, are excluded from this study as they entail complex economic analyses. However, a couple of the studies are especially germane to our discussion.

One, published in 1974, compared expected earnings by high school curriculum and thereby calculated lifetime rates of return from education. It conclude that, "on the basis of its economic value, vocational education is indeed a worthwhile investment to society."⁶⁶ Of fourteen vocational programs studied, all but two were found to return benefits to society in excess of resources expended on them.

A Massachusetts study (previously cited in the training/job relatedness section), praises vocational high schools for producing male graduates who out earn their nonvocational counterparts by \$1,378 per year.⁶⁷

It further states that enrollees in cooperative education programs, consisting predominantly of vocational students, earn a good deal of additional money while in school.

The article compares wages earned by students immediately entering the labor force with those forgone by academic students while attending four-year colleges, and declares that college students have a \$40,000 gap in earnings to close upon graduation. If one adds to this loss of earnings the cost of college tuition, the disparity increases. The article confidently concludes that "male secondary T & I graduates earn a significantly higher average annual salary ...than graduates of two and four-year colleges."⁶⁸ It must be emphasized that these findings reflect only the achievement of male students.

The study focusing on Arkansas high schools states that proportionally more vocational graduates earn high salaries than others; however, it hedges that statement by allowing that the difference is not statistically significant.⁶⁹

Finally, Beatrice Reubens writes that there is little evidence of high school vocational training resulting in higher wages. She bases her assertion, in part, on studies which show that initial wage advantages level out in 6-10 years. The studies she alludes to are not cited in the article, however, and there is no reason to conclude that the studies she relies upon are more valid than those which

she criticizes. Furthermore, the article concedes that college graduates are at a disadvantage in the labor market if they have not acquired occupational skills.⁷⁰

C. SATISFACTION VALUES

Frequently, researchers disregard possibly essential variables in evaluating educational outcomes. One such area is broadly referred to here under the heading "satisfaction values". It encompasses student assessment of vocational training, employee satisfaction with employment, and employer satisfaction with employee. Comparisons are again made among the various curricula when possible. Satisfaction values are by nature subjective judgments. But those who make the judgments, graduates and their employers, are uniquely qualified to do so. The effects of vocational education impact more acutely on them than on any other group in society.

Student Evaluation of Education

National Studies - This satisfaction value component simply reflects graduate opinion regarding the quality of their vocational training. Unfortunately, it is seldom included in typical vocational followups. Nevertheless, it is potentially important because evaluations are presumably commensurate with the level of skills students perceive themselves as having acquired.

Project Metro is one of the few major studies that inquires into student opinion with respect to their education. It calculates that vocational training receives "an impressive 95 percent endorsement ..."; 40 percent rated vocational courses "excellent" and 55 percent rated them "good."⁷¹

The graduates questioned, however, were only those employed in the fields for which they were trained. If the unemployed graduates and those employed in fields unrelated to their training were questioned, surely this high endorsement rate would fall.

The National Longitudinal Study notes that vocational graduates reported applying skills acquired in school to their jobs more often than graduates of other curricula.⁷²

The inference that more vocational students were, therefore, satisfied with their training might also be drawn, except that fewer academic and general students received job training, as such, in school; hence, proportionally fewer academic and general graduates had the opportunity to apply such skills. As a result, students' application of school-taught skills to their jobs should not be an indicator of satisfaction with training. A possible endorsement of vocational education, though, is that vocational graduates felt more confident applying acquired skills to their jobs than did graduates of any other curriculum.⁷³

Project Baseline comments that data on student opinions are "completely lacking in all but a few States."⁷⁴ Baseline feels that student opinions, as well as those of their employers, could greatly upgrade vocational programs, thus, it strongly advocates the collection and usage of such data.

State and Institutional Studies - Asking graduates whether they would re-enroll in vocational courses if they had it to do over is perhaps the most direct way to measure student appraisal of training. That question was put to workers in program-related occupations by one follow-up survey. Of those satisfied with their jobs, the majority said they would repeat their training. In fact, 75 percent felt they could not have gotten their jobs without it. Even a majority of those not satisfied with their jobs indicated they would re-enroll in vocational programs.⁷⁵ Again, though, these findings are derived only from answers of graduates employed in training-related jobs; therefore, they are somewhat inflated.

The Massachusetts study of male high school graduates achieved similar results. One of its conclusions states that "vocational-technical students evaluate high school as a more positive experience than general academic students..."⁷⁶ A positive experience does not necessarily imply complete satisfaction with the high school curriculum, but it will not hurt vocational education's image either.

Student Satisfaction with Employment and Employer
Satisfaction With Employee

National Studies - There are admittedly many factors which influence workers' contentment with their jobs apart from scholastic curriculum. If, however, vocational workers consistently voice greater job satisfaction, it is a noteworthy finding and its ramifications merit examination. Similarly, although there are numerous factors which affect employers' evaluation of their employees, it is fair to assert that acceptable job performance is a prerequisite to positive employer assessment of employees. Taking it further -- job performance should reflect the competency level attained in school, at least for those workers employed in training-related occupations. Regrettably, there is little information available on this point.

The National Longitudinal Study asked those graduates who were employed to indicate if they were satisfied with their jobs. It concluded from their answers that "overall, graduates of the vocational curriculum seemed more satisfied with their jobs than did graduates of other curricula."⁷⁷

Employers were not similarly questioned as to employee competency.

Other surveys attempting to ascertain worker job satisfaction are less conclusive. The National Academy of Sciences identifies studies which suggest both that vocational

graduates express greater job satisfaction, and conversely, lesser job satisfaction. All of the referenced documents are pre-1970; consequently, they are not germane to this study.

State and Institutional Studies - In a postsecondary graduate followup sponsored by the American College Testing Program, the great majority of vocational workers expressed satisfaction with their current jobs.⁷⁸ Percentages of satisfied students, by occupational category, are set out.

The Arkansas high school graduate followup study similarly states that vocational workers express greater job satisfaction, albeit by a statistically insignificant margin.⁷⁹

In her Manpower article, Beatrice Reubens apparently synthesizes individual opinions regarding employment satisfaction. Despite the article's tone, which denigrates vocational education, it grudgingly allows that "high school vocational education graduates seem to be somewhat more satisfied (with their jobs) than other high school graduates..."⁸⁰

One of the few articles relating employer evaluation of workers to high school curriculum was written by an employment coordinator for school and industry. Without providing data, he concludes that vocational workers received favorable evaluations from their employers,⁸¹ -- not a surprising finding in view of his occupation.

CONCLUSION

This study was initiated with the goal of pinpointing specific, articulable benefits of vocational education and empirically supporting them. Many of the findings and assertions of the resources reported here, however, are not so concrete. Hence, it is preferable to allow the reader to draw his or her own conclusions, and only briefly summarize some general trends that appear from an overview of the data.

Vocational graduates are doing as well as, and often better than, graduates of other curricula. Most studies show vocationals to be slightly outearning other students shortly after graduation, especially when vocationals acquire training-related jobs. They are often more satisfied with their jobs than academic and general graduates and, for those vocational students who choose to continue their education, the openings are available. Vocational job hunters generally require less time to secure their first jobs and regard their training as important in the acquisition of those jobs. Additionally, the great majority of vocational graduates rate their prior vocational instruction highly.

Perhaps the most overlooked accomplishment of vocational education stems from its assistance to important segments of society that might not be adequately served by academic or

general education. Vocational students are generally from lower socioeconomic backgrounds, but evaluations seldom take this into account.

Much of the debate surrounding relative educational success also ignores another important point. That is, why is the onus not on other educational disciplines to provide precise data proving that they benefit their students in tangible, economic ways upon graduation? Academic and general education are not held to the same high effectiveness standards that vocational education is. To simply say that vocational education is often more expensive is to beg the point. If economic efficiency were the only objective of education, then logically we would cut back on educational services to the disadvantaged and the handicapped -- to groups which also demand comparatively high per capita expenditures.

Ongoing Projects

As stated earlier, the most formidable obstacle to conducting this study was the data itself. In order to alleviate the difficulties caused by incongruous research and reporting categories, format prototype must be developed for use in research as well as program administration. Confusion should also then clear up regarding whether particular outcomes are benefits and detriments. The U.S. Office of Education is currently funding two projects which focus on this problem.

One, entitled The Development of Sample Designs for the Follow-up of Vocational Education Graduates, and conducted by Westat Research, Inc., is aimed at producing sample designs to aid States in conducting followup studies of vocational graduates. This project should simplify the data collection process as well as add uniformity to the resultant statistics.⁸²

The second project relates more to the section on "Miscellaneous Benefits of Vocational Education." It is entitled A Study of the Comparison of the Benefits of Secondary and Post-Secondary Vocational Education and is conducted by the Montana State Department of Public Instruction. The study attempts to identify psychological and sociological benefits accruing to students from vocational education; it apparently does not compare the relative benefits of the two levels of secondary and postsecondary programs.⁸³ If some previously ignored benefits can thus be linked to vocational education, the future for vocational education can be plotted more accurately to the benefit of participants and the tax payer.

FOOTNOTES

(Sources are more completely cited in the Bibliography)

- ¹ Act of October 16, 1968, Public Law 90-576
- ² United States General Accounting Office, The. What is the Role of Federal Assistance for Vocational Education? 1974. p. 82.
- ³ Eninger, M.V., Effectiveness Evaluation Data for Major City Secondary Education Systems in the United States. 1972. p. 1-17.
- ⁴ Committee on Vocational Education Research and Development. Assessing Vocational Research and Development. 1976. p. 108.
- ⁵ Reubens, Beatrice G., "Vocational Education: Performance and Potential." Manpower. July 1974. p.26.
- ⁶ See e.g., Law, Gordon F., The Impact of Vocational Education and Manpower Training on the Labor Market. 1974.
- ⁷ Ghazalah, I.A., "The Economic Value of Vocational Education: Report of a Study in Eighteen Schools" American Vocational Journal, January 1974. p. 30.
- ⁸ Id. at p. 33.
- ⁹ Lee, Aurthur M., Learning A Living Across the Nation. Volume V, Part I., 1976, p. 75. (Hereinafter referred to as Project Baseline).
- ¹⁰ See, Creech, Reid F., Comparative Analysis of Postsecondary Occupational and Educational Outcomes for the High School Class of 1972., 1977., p. 5, 18.
- ¹¹ National Planning Association Center for Priority Analysis. Policy Issues and Analytical Problems in Evaluating Vocational Education., 1972. p. 1-7.
- ¹² See Generally, Eninger, M.V., Effectiveness Evaluation Data for Major City Secondary Education Systems in the United States. 1972. (Hereinafter referred to as Project Metro).

- ¹³ See generally, Creech, Reid F., Comparative Analysis of Post-Secondary Occupational and Educational Outcomes for the High School Class of 1972., 1977. (Hereinafter referred to as the National Longitudinal Study).
- ¹⁴ See generally, National Planning Association Center for Priority Analysis. Policy Issues and Analytical Problems in Evaluating Vocational Education, 1972.
- ¹⁵ Lee, Aurthur M., Learning a Living Across the Nation. Volume V, Part I, 1976, p. 2
- ¹⁶ Id. at p. 2
- ¹⁷ Id. at p. 2
- ¹⁸ Committee on Vocational Education Research and Development. Assessing Vocational Education Research and Development., 1976. p. v.
- ¹⁹ See generally, United States General Accounting Office, The. What is the Role of Federal Assistance for Vocational Education? 1974.
- ²⁰ See, Project Metro chart at p. 4-7.
- ²¹ Lee, Authur M., Learning a Living Across the Nation. Volume V, Part II. 1976, pp. 71-74
- ²² Id. This figure was calculated by dividing the total number of students continuing their education into the total number of completers.
- ²³ The National Longitudinal Study at p. 25.
- ²⁴ Id. at p. 2.22
- ²⁵ Reubens, Beatrice G., "Vocational Education: Performance and Potential." Manpower, July 1974. p.26.
- ²⁶ Horvath, Ronald J., A Study of Community College Students Who Are Graduates of Vocational Technical and College Preparatory High School Curriculum. 1973. p. 62.

27 Id. at p. 36

28 Project Baseline, Volume 5, Part I, at p. 34.

29 What is the Role of Federal Assistance for Vocational Education?
at p. 82

30 Project Baseline, Volume 5, Part I, at p. 36.

31 Project Metro at p. 4-6.

32 Id. at p. 10-2.

33 Sullivan, J. V., Effectiveness Evaluation Data for Major City
Secondary Education Systems in the United States., 1974. p. 3-124.

34 Project Baseline, Volume 5, Part I, at p. 34.

35 Id. at p. 35.

36 Project Baseline, Volume 5, Part I at p.36.

37 National Longitudinal Study at p. 2.4.

38 Id. at p. 2.40

39 Id. at p. 5.16.

40 Reubens, Beatrice G. "Vocational Education: Performance and
Potential." Manpower, July 1974. p. 905.

41 See generally, Andrew, Dean C. and Roberts, Lawrence H., A
Comparative Study of the Occupational Achievement of Vocational
and Non-Vocational High School Graduates in the State of Arkansas.
1974.

42 Project Metro, Volume I at p. 10-2.

43 Id. at p. 9-6.

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Id. at p. 8-9.

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Project Metro., Volume I at p. 8-7.

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Project Metro, Volume II at p. 3-126.

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The National Longitudinal Study at p. 2.45.

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Id. at p. 2.47.

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Id. at p. 2.49.

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Id. at p. 2.42.

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at p. 72.

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Noeth, Richard J. and Hanson, Gary R. "A Five-Year Follow-Up of Students Enrolled in Postsecondary Vocational-Technical-Transfer Programs.", 1975. p.11

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Id. at p. 10.

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Id. at p. 9.

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See generally, Conroy, D. "Secondary Vocational Education Measures Up as a Positive Investment." American Vocational Journal, November 1976.

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Wilson, John A. "Placement and Followup Aids in Evaluating the Accountability of Vocational Programs." The Agricultural Education Magazine. October 1971. pp. 98-99.

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Policy Issues and Analytical Problems in Evaluating Vocational Education at p. 1-12.

- 60 Id. at p. 1-13.
- 61 Project Metro, Volume I at p. 8.13.
- 62 Project Metro, Volume II at p. 3-129.
- 63 Project Metro, Volume I at p. 10.3.
- 64 National Longitudinal Study at p. 2.14.
- 65 Assessing Vocational Education Research and Development at p. 110.
- 66 The Economic Value of Vocational Education at p. 33.
- 67 "Secondary Vocational Education Measures Up as a Positive Investment" at p.45.
- 68 Id.
- 69 A Comparative Study of the Occupational Achievement of Vocational and Non-Vocational High School Graduates in the State of Arkansas at p. 105
- 70 "Vocational Education: Performance and Potential" at p. 25.
- 71 Project Metro, Volume I at p. 3-88, 89.
- 72 National Longitudinal Study at p. 2.46.
- 73 Id. at p. 2.49.
- 74 Project Baseline, Volume 5, Part I at p. 47.
- 75 "A Five-Year Follow-up of Students Enrolled in Post-Secondary Vocational-Technical-Transfer Programs". at pp 8,9.
- 76 "Secondary Vocational Education Measures Up as a Positive Investment" at p. 45.

- 77 National Longitudinal Study at p. 2.55.
- 78 "A Five-Year Follow-up of Students Enrolled in Post-Secondary Vocational-Technical-Transfer Programs" at p. 8.
- 79 A Comparative Study of the Occupational Achievement of Vocational and Non-Vocational High School Graduates in the State of Arkansas at p. 118.
- 80 "Vocational Education: Performance and Potential" at p. 26
- 81 Wilson, John A., "Placement and Followup -- Aids in Evaluating the Accountability of Vocational Programs." The Agricultural Education Magazine, October 1971. p. 99.
- 82 Current Projects in Vocational Education: FY 1976. Columbus, Ohio: The Center for Vocational Education, February 1977. p. 132
- 83 Id. at p. 54.

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